



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
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Jason Didden
Coordinator for the Mackerel, Squid, and Butterfish Fishery FMAT
Mid-Atlantic Fishery Management Council
300 South New Street
Room 2115, Federal Building
Dover, DE 19904-6790

Dear Mr. Didden,

This letter details the investigation on the data quality of mesh size measurements taken by Northeast Fisheries Observer Program observers in the *loligo* fishery, as identified during the Amendment 10 public hearing process of the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan.

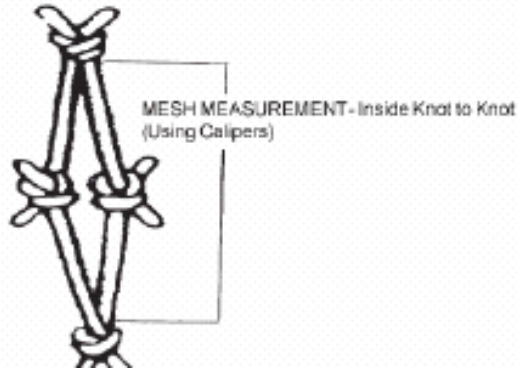
The Northeast Fisheries Observer Program (NEFOP) provides observer coverage in the Northeastern and mid-Atlantic regions of the United States. The mid-Atlantic small mesh otter trawl coverage is supported by Congressional funds to observe Atlantic Coastal State fisheries, and encompasses less than 7% of the program's total annual funds. Regardless of the relative scale of coverage of that fishery, the NEFOP upholds the same data quality standards to all observed fisheries, however, NEFOP staff are less familiar with that gear type, than compared to other gears covered at a higher frequency.

NEFOP staff became aware of a possible problem with observer data collection protocols at a Mid-Atlantic Fishery Management Council (MAFMC) meeting in New Bern, North Carolina on October 18, 2007. In November 2007, NEFOP staff met with MAFMC staff to further discuss the complaints regarding the observer program data. NEFOP staff was concerned with the suggested problem of observer adherence to protocol and immediately initiated changes and dedicated time to research the complaint. A MAFMC member demonstrated and stated that observers do not always follow the proper procedure in obtaining codend mesh sizes, and in particular, liner mesh sizes.

Observers on trawl trips should obtain ten random mesh sizes (in millimeters) from the codend (sometimes referred to as the outside bag, codend covers, or strengthener), and four random mesh sizes (in millimeters) of the liner (also referred to as the inside bag, or codend by some). Prior to March 2007, observers only recorded one liner size. They should use calipers to get a stretched inside knot to knot measurement, after the net has been fished so it is wet, not frozen, and away from the terminus, seams, and net repairs. (The method that observers use to collect codend measurements is described in a letter from the Science and Research Director to the Chairman of the Atlantic Mackerel, Squid and Butterfish Committee in January, 2007.) Observers have been consistently trained on this and have received memos from NMFS to

remind them of the policy. However, industry members were stating that observers had not measured their gear with this technique, and apparently were recording a number that was obtained from the captain instead.

Illustration 1. Illustration from the Observer Program Manual and demonstrates where the calipers should be inserted to obtain the inside knot mesh measurement.



The Problem

It was stated that observers do not always physically measure the codend mesh opening and that in lieu of taking such measurements they merely ask the vessel captain. The terminology “60 millimeter mesh” (2 and 3/8 inches) is in reference to a center knot, non stretched mesh and should not be recorded and miss-presented as an inside knot to inside knot stretched measurement.

Photo 1. Typical codend used to target *loligo*. This net shows strengtheners, codend, and liner. This net may be called a 6 cm (60 mm) net by the captain (being a center knot to center knot measurement). NEFOP staff also measured this net to obtain the inside stretched liner mesh size, which was found to be between 48 mm and 55 mm (inside knot to inside knot stretched).



Photo 2. This photo demonstrates the correct way for an observer to obtain an inside knot to inside knot stretched liner measurement using calipers (measuring at 53 mm).

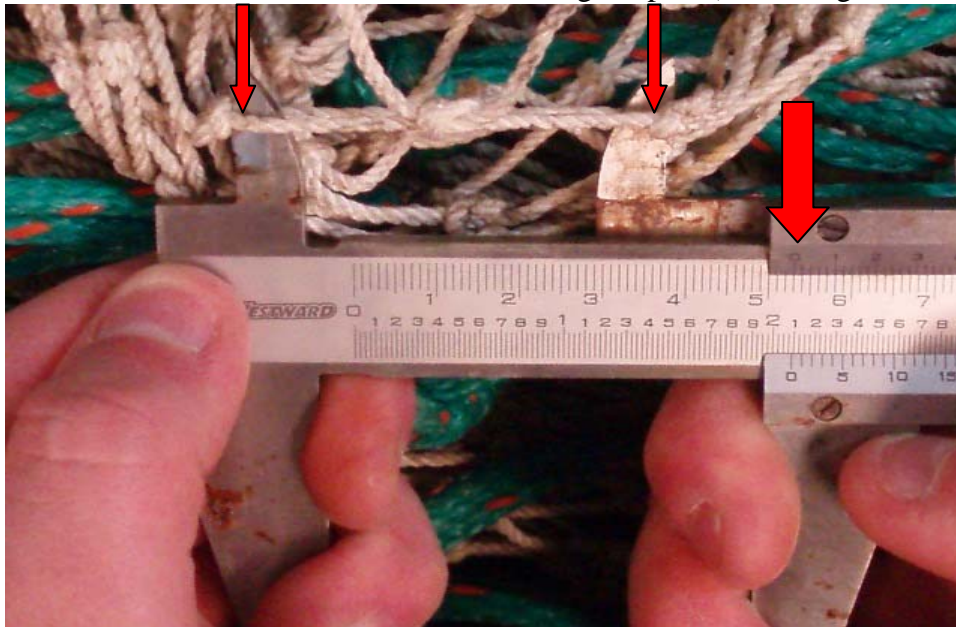


Photo 3. This photo demonstrates the measurement of center knot to center knot, as used by the gear suppliers (measuring at 60 mm).



Terminology and conversions

We found that some captains would reference the gear above as 2 & 3/8's inches or 6 centimeter, but some captains would call it 2 & a half inch gear as well. If observers had asked the captain for the liner size, we would usually see a comment such as "captain said he was using 2 & 3/8's gear". Conversions to millimeters would be: 2 and 3/8 in = 2.375" x 2.54 cm = 6.03 cm = 60 mm.

Confusion on the log

Prior to March 2007, the observer gear characteristic log for trawl had **ten lines** for “Mesh Size”, followed by a question, “Liner Used”, the **one line** “Mesh Size” below that. Although the instruction manual went into detail on how the observer should collect these measurements, that the first ten measurements were for the codend (or outside bag), and if liner was used, they would record one measurement from the liner. Some observers misunderstood this section of the log, confounded by the variety of terminology used on the vessels. We found several errors to occur in this section.

1. Observer may record the liner measurements in all 11 fields. Some observers may have even thought that the ten lines were for actual measurements, and the one liner line was for an average or that it was ok to ask the captain for that one.
2. Observers would ask the captain, write it down in the comment section, and not put it in the field. But, then an editor may have read it and thought it was ok to enter it in the database.

There were also errors with the conversions, such as:

1. The captain would tell the observer that it was “2 and 3/8’s” and the observer would write down “2.38 inches”. That would be rounded and converted as: $2.4 \times 2.54 = 6.096 \text{ cm} = 61 \text{ mm}$.
2. The captain would sometimes reference the gear as “2 and a half inch” gear. That would be converted as: $2.5 \times 2.54 = 6.35 \text{ cm} = 64 \text{ mm}$.
3. If we saw evidence of 6 cm being converted, that was possible indication that the captain was asked.

Illustration of the types of errors found

liner	MESH SIZE	mm
	125	62
	62	64
	64	63
	62	62
	60	62
LINER USED?		
NO 0		
YES 1 <input checked="" type="checkbox"/>		
MESH SIZE 60 mm		

MESH SIZE	mm
152	150
154	151
149	152
151	151
149	152
LINER USED?	
NO 0	
YES 1 <input checked="" type="checkbox"/>	
MESH SIZE 60 mm	
USED?	

MESH SIZE	mm
141	148
147	150
147	147
149	160
145	148
LINER USED?	
NO 0	
YES 1 <input checked="" type="checkbox"/>	
MESH SIZE 60 mm	

*captains estimate

• liner was not measured (captain had put it away)
- captain said the mesh size was 6 cm

The NEFOP has since added additional measurements for the liner (now four), better log design, and improved training for the observers and editors.

Observers would not just make up data. There is much emphasis on data falsification during the observer certification process, where observers sign agreements on ethics, standards of conduct, and conflict of interest. They know that any intentional misrepresentation or making up of data will be investigated and they may face criminal charges involving financial penalties, possible jail time, loss of employment opportunities, and a permanent record on their work history.

The observers would also face regular resistance and conflict from the vessels when they needed to measure the codend. On several occasions, captains would refuse the observer access to their gear. When they did measure the gear, the captains would say they should use the same tool as the U.S. Coast Guard uses, or tell them that they didn't stretch it enough. For that reason, observers tended not to go into great detail on the mesh size issue, not wanting to further antagonize the captain. Observers would often gather information regarding the gear via casual and limited conversation with the captain, they may also see the mesh size recorded on the Vessel Trip Report, and when measuring the codend on deck, would try to do it when it worked in well with the fishing trip, such as when the crew was mending the net, or if the codend was hanging low enough on the reel, when the vessel was steaming back to port or in between tows.

Observer Survey

A questionnaire was developed by the NEFOP Operations Coordinator to get feedback from the observers on whether they measure the codend regularly with calipers, and if not, why they didn't follow the regular protocol. The survey responses were anonymous, were sent and collected by NMFS directly, and done before the controversy was publicly displayed.

In November 2007, a Mesh Measurement Observer Survey was mailed to active certified Northeast Fisheries Observers. Observers were asked whether or not they always use calipers to measure the codend and they were asked to describe some of the challenges associated with this task. Following is a summary of the thirty five (35) survey responses.

Question: Do you use the calipers to measure the codend and liner mesh sizes?

Responses: No = 0; Yes = 35. All observers use the calipers. On rare occasions, there have been some unusual circumstances occur where observers were not able to measure the cod end with calipers (i.e. hydraulic system broken with net on high reel; vessels lost net or cod end at sea; weather conditions became too dangerous).

Question: Have you ever asked the captain what cod end or liner size they use, recorded it on the Gear Characteristics Log in the mesh measurement fields, and not actually confirmed the measurement with your calipers?

Responses: No = 28; Yes = 7, (explanations below):

One time, due to entire net being lost at sea. I commented it was the captain's measurements that I took.
I have had to use captain's estimate of size but recorded this in comments.
This last trip the captain changed codends in middle of trip and placed first codend on a high reel. Then the hydraulic system broke so I couldn't get to the first codend.
If I did this, I would comment that measurements were obtained by asking captain and

would explain why I couldn't get them myself. But this rarely occurs.
One USCA trip, they finished fishing immediately after I went off watch. When I came back on, the net was dry so I didn't measure.
If weather conditions were too hazardous.
The entire codend was lost at sea before I could get measurements. I recorded the captain's estimate in the comment section with a description of circumstances.

Question: Have you ever asked the captain what codend or liner size they use, as well as taken the measurements with your calipers?

Responses: No = 28; Yes = 7.

Question: What challenges are you faced with when having to measure the codend and liner?

Responses: See summary and comments below.

Captain standing over your shoulder telling you you're not doing it correctly. Waiting to get the measurements when fishing is complete and net is onboard. Usually by this time the weather gets rough and it's too hard to stretch the calipers while the net is swaying and the captain won't lower net onto the deck. Happens a lot.
Crew watching. Timing of measurement especially on short busy trips. Calipers not extending thick twine.
Weather, too choppy and must wait until back. Net hanging or laid awkwardly and hard to get good measurements.
Just getting the crew or captain to lower the net down once it's wound up on the reel.
I'm new and only have done 1 trawl trip so can't really answer. I didn't face any challenges when measuring.
Getting it tight enough in order to get an accurate measurement.
It's happened that they've stopped fishing on a particular codend while I was asleep (don't think it was intentional) and they never used that codend again so it wasn't wet when I needed to measure it. I usually try to wait for the end of trip because I don't want to be in their way or ask to measure in the middle of fishing.
Timing - usually only able to measure when crew shakes out net at end of trip. Sometimes a codend change where the codend is put in a hold or storage box prevents measuring. Freezing conditions, especially if steaming.
It's like pulling teeth!
One tow trips are most difficult as it takes some cooperation from the captain. However, even on these trips most of the time they'll shake down the net (clean fish still caught in the belly). When they do this you can drag part of the codend aside to get measurements before they're done.
Calipers rusting up.
Finding an opportune time to measure codend w/o being in the way, once it has been used and before it's stowed away.
The net being on the reel; language barrier.
Getting to the codend while it's on the reel.
Uncooperative crew/captain; Captain complaining that we are using wrong tool (i.e., not same as US Coast Guard).

The calipers – Every time they slip on the mesh, I take a big chunk of flesh out of my thumb w/ the pressure I have to use to stretch the mesh. On one occasion the captain had gone out and bought a weighted wedge that the coast guard uses. There's no way my calipers can stretch the mesh as far as the wedge. I didn't double check, but I hope the caliper measurements fairly accurately represented his real mesh size. Why can't we have wedges?
Sometimes I feel like I can't stretch the mesh out enough with the calipers. All the captains told me that my calipers measure too small, when the CG boards them and measures their gear, the measurements are at least 1/2 inch larger than when I do it. I understand that this is a standardized tool that all observers use, so scientifically it is acceptable, but I'm not so sure that captains believe me when I tell them that. Therefore, the major challenge is that taking these measurements is one of the most uncomfortable parts of the trip.
Timing when to measure the codend because it needs to be lowered by Captain.
Weather conditions; sometimes crew will not let me know when it's the last haul and will begin to wind it up and tarp it very quickly; Captain's and crew's attitude towards having someone measure the codend.
Only 1 trip on trawler, no problem.
Just trying to communicate with captain and crew to get at the codend/liner when wet or on deck, not when it is on the net reel.
Space; having the codend covered by a tarp before getting measurements.
Environmental conditions with getting access to codend when it may be wound up or ready for another haul.
Rough seas, i.e. breaking waves and seriously pitching deck; Freezing spray and zero degree weather = frozen codend difficult to measure; time - when vessel ends a tow at the edge of a closed area which must be crossed to return to port, the crew immediately covers the net drum (net, codend and all) with tarp in accordance w/ regulations. For them to delay the covering, risks incurring a fine if seen by CG or enforcement. Also, if they lay to waiting for the observer to measure, they may be burning up time in a 2 for 1 area. If circumstances don't permit measuring at this time, it can be done at the dock.
Timing: find time to do it while the net is wet and while the boat isn't rocking so much that it isn't safe. Getting the mesh to stretch; calipers are awkward and cut into my fingers.
Measuring AFTER it's been fished/wet. Sometimes have to stay late as they clean the net in order to get correct measurements.
Nets are sometimes changed and piled on deck making it hard to get to the codend. Sometimes codend is hard to reach - hanging off aft of boat.
The right timing to get the measurements.
There are instances in the past when a few captains didn't think I was applying enough pressure on the calipers to get a proper measurement. This is not an issue but many captains are curious as to what the measurement average came out to. On one occasion a captain was angry with me for not using a proper (USCG Wedge device) tool to take measurements.
Small points on the calipers make it difficult to stretch the mesh and get an accurate reading.
None
Asking Captain to put the net on the deck. The meshes becoming hard from freezing. Waiting until net is wet to take measurements. The captain questioning my utensil (calipers instead of tool that CG uses) and measurements.
Weather conditions make it hazardous to stand at stern and measure.

Often the codend is in great disrepair by the end of the trip and getting accurate measurements can be difficult.

The codend being sucked up too far on the net reel. You usually just ask one of the deck hands to lower the net off the reel enough to measure.

Question: Have you ever had a captain deny you access to measuring the cod end?

Responses: No = 33; Yes = 2.

But they want us to do it when it won't interrupt fishing and/or net repair.

Because I used the "wrong" measuring device (not same as USCG).

But they all complain about it - that we don't hold them to the same measuring standards as the USCG. One captain almost didn't let me, but I pushed him for it.

I've never had a captain deny me access. I have had captains ask that I wait for vessel to get in a sheltered lee, or even in the harbor in extremely bad weather conditions.

Claimed that the tool we used was illegal and owner ordered him not to let us use it.

Question: Do you ask the captain to lower the cod end to the deck so that you can measure the cod end?

Responses: No = 3; Yes = 18; Sometimes = 14.

Usually they leave it hanging in the air and lower it enough so I can reach.

I have asked to keep the codend on deck for a few extra minutes after the catch has been dumped.

If I can reach it safely, I will measure it on the reel.

Always.

I usually get it before they reel it back up on the reel.

Every time unless they are mending the net, then I slide in and grab the measurements.

Depends if it is lowered already or if I can reach it to begin with.

Sometimes I get measurements when the net is hanging from the reel.

If I can get measurements while they are doing gear work or steaming with nets on deck, I do so.

Question: Is it possible for you to measure the cod end while the net is still on the net reel?

Responses: No = 7; Yes = 6; Sometimes = 22.

Weather makes this extremely hard.

If enough codend is dangling free, I've done it, though net was not laying flat on deck.

Not accurately and not at 5'6"

We aren't supposed to do it that way anyway.

Depends if it's all the way on and how tightly.

It's really difficult to get a good read. They need to be vertical in order to reach both ends of the calipers into the mesh.

I have done it once in awhile when the crew has already reeled the net back up.

The codend must be hanging down some and not completely on the reel.

An observer only needs the codend to be lying on the deck, the body of the net can still be on the reel.

Depends how tight net is on reel. Very tight prevents you from stretching meshes to full

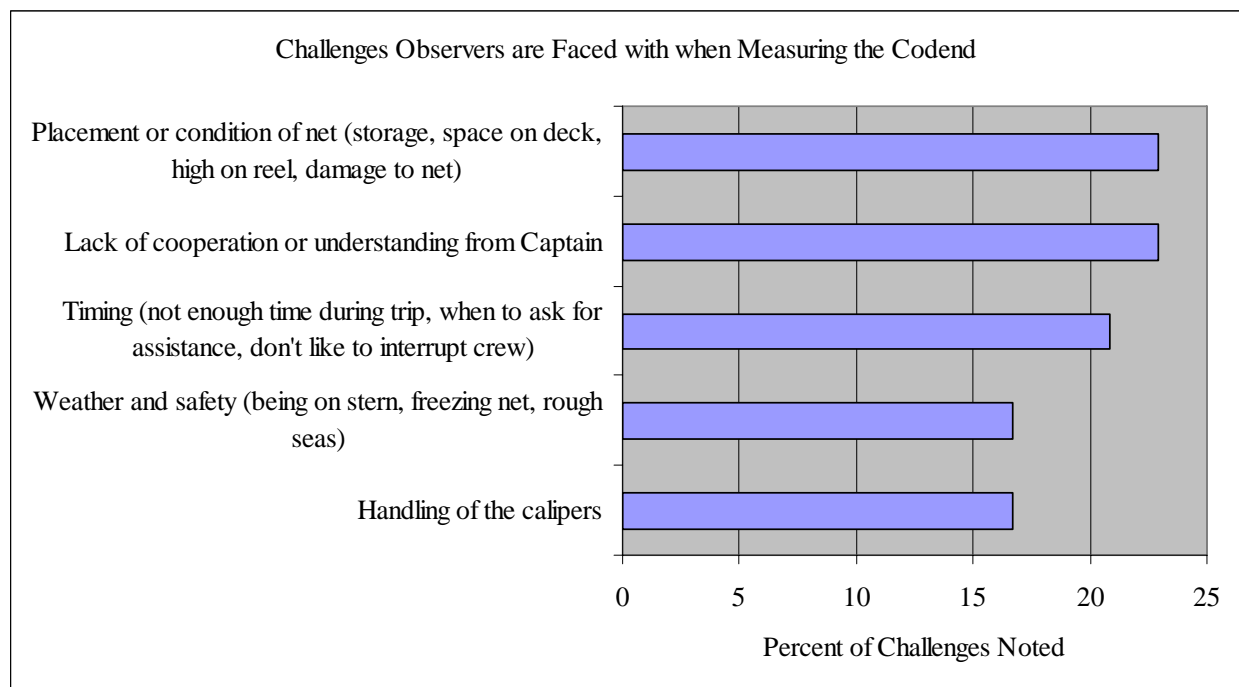
size.
As long as codend is not on the reel.
Sometimes they leave several feet of codend hanging free.

Question: Is it possible to measure the cod end without the captain seeing you take the measurements?

Responses: No = 2; Yes = 33.

Sometimes if there are multiple gears and we switch nets during the trip. When I'm done with sampling fish, I go over to the net taken off and measure it.
Capt. In wheelhouse busy. Simply measure if not being used. For instance, 2 codends used on 1 trip.
If the crew helps or lowers the net instead, but you still have to ask the captain.
If he's in the wheelhouse.
Yes, the Captain can be in the wheelhouse and the net reel is behind the wheelhouse.
Sometime the codend has been down on deck while the crew worked on the net and we were steaming somewhere so the Capt. May not have seen me measuring codend.
If mate is on watch for last tow or shaking out net.
Yes, all the time. In fact that's the way I try to do it.
Maybe if boat is still at dock and no one around. At sea I don't think it's a good idea to be on the back deck without someone knowing you're there.
Yes, when I can reach the codend off the reel or when the crew is shaking down the net at the end of the trip.
I would give them a heads up at beginning of trip that I would need to measure gear.
Yes, not all wheelhouses can view the work deck.
Yes, If we are underway and I'm on deck.
Yes, you ask the captain and he allows and just doesn't watch, i.e. stays in wheelhouse to pilot vessel.
No - well, unless he does something else after I've asked him to lower the codend. Usually the captain helps me stretch the mesh or find a mesh that would give what he feels is an accurate reading.
The only circumstance would be on the steam out (or in) if the codend is accessible. However, I would never do that b/c if the captain does come out on deck and sees you measuring his gear without his knowledge, he won't be too happy about that. I like to explain everything I have to do before doing it.
Only had 1 trawl trip...so not yet sure.
Captain is sleeping (Mate in charge); Captain busy with something else (in engine room etc.); usually someone sees you, usually a crew member not the captain but it's also possible for no one to see you, such as during the steam in when most are sleeping and Mate or another crew member is at the wheel.
Yes, if Captain is in wheelhouse or busy he may not see me.
On multi-day draggers the captain Is not always on, or necessarily looking at the crew or myself work (measuring codend).
Yes, if the crew is mending or cleaning the net out, you can get measurements then.
No, unless he's really busy with something else. But I don't see the need to hide my actions.
On vessels where captain fishes alone, and even on vessels with crews, quite often they'll drop

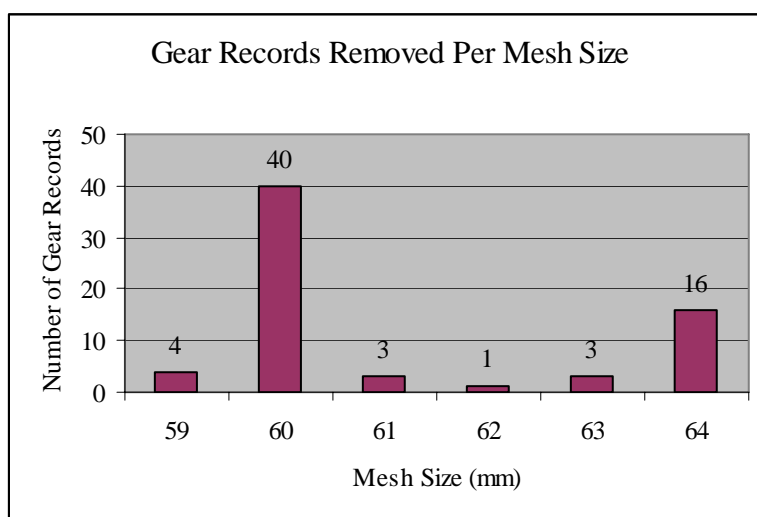
the codend on deck and the head inside, letting the observer "do their thing.." and then coming out to wind it back on.
Yes, if he's busy or doesn't care.
Not really.
Yes, if vessel has multiple reels and captain just switched reel being used, I'll measure the codend after going through the catch. Captain is usually in wheelhouse driving.
When there are 2 net reels on F/V and the F/V is small, the first net blocks the view of the other net.
Yes, Capt may be somewhere else on the boat and may not have a way to see the net.
Yes, if captain is in the wheelhouse and a mate lowers the net to the deck for you to measure.
Yes, if someone other than the captain is instructed to lower the codend.
Sometimes. If captain isn't helping pick catch.
Yes, simply do it while they aren't looking.
Yes, if they have left the nets sitting on the deck while steaming. I always let them know what I am going to do.
Yes. He is busy in the wheelhouse, eating a meal, or sleeping in his rack. It does not take long to get 10 measurements so it's easy to miss the whole thing.



Database review

NEFOP staff conducted a log-by-log review of *loligo* trip gear records (1996-2006) where the codend liner mesh size resided in the 60 mm range. Logs were examined for evidence of the observer recording a captain's response rather than using their calipers. Measurements that were collected in inches in the way that the industry may have been expected to answer (i.e. 2 and 3/8") were further researched. Comments on the Gear Log were reviewed for suggestions or notations that the measurements were obtained from the captain. Using a conservative approach,

if there was anything to suggest that the observer interviewed the captain, rather than measuring the codend themselves, the mesh sizes were removed from the measurement fields, and were noted in the comment section of the log. A total of 67 gear records were changed to null (i.e. field was deleted) in the database, and the measurements were noted in comments as a captain's estimate instead. The majority of the deleted records (40) were 60 mm (60%); 16 (24%) of the deleted measurements were 64 mm; 4 gear records at 59 mm, 3 records at 61 mm and 63 mm each, and 1 record at 62 mm (see graph below).



NEFOP also compared all of the *loligo* trips with a liner size of 60-64 mm to the Vessel Trip Report data. We found a lot of variation in how the VTR's were completed, however if the value recorded by the captain was exactly the same as that of the observer, we presumed that the observer asked the captain rather than record their own measurement. The NEFOP Data Quality Team is doing further work on the mesh size issue, and is not restricting the scope to this particular gear size or target species.

Table 1 and 2 below provide some summaries of how many trips, gears, and hauls were affected by the editing process to remove suspect data.

Table 1. Summary of records, on trips targeting *loligo*, which were affected by changes to mesh size records in the Observer Database from 1996 through 2006. This summary includes, by year and in total, the number of trips that were suspected of having errors, the number of vessels those trips were on, the number of observers, the number of trawl gears on which the mesh sizes were nullified, the number of tows that those gears were used on, and the summation of pounds of *loligo* caught on those tows. These changes affected about 12% of the gear logs that NEFOP had collected on the *loligo* fishery specifically.

Table 1 (continued).

Year	Number of Trips	Number of Vessels	Number of Observers	Number of Gears Affected	Number of Tows Affected	Total Loligo Pounds from Affected Tows
1996	3	2	2	3	59	17,002
1997	7	5	2	9	110	128,575
1998	4	4	2	4	40	55,793
1999	6	4	3	7	122	133,792
2000	3	3	2	3	74	64,872
2002	3	2	2	3	4	2,438
2003	3*	3	3	4	32	33,927
2004	9*	8	5	10	171	249,637
2005	16*	14	15	18	217	339,319
2006	5	5	5	6	67	91,461
Total	59	(34 Unique)	(30 Unique)	67	896	1,116,816

* This subset included several training trips.

Table 2. Pounds of *loligo* landed from individual trips with changes made to gear records (includes all *loligo* landed from trip, not just tows with changed gear records).

Trip	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	5,866	1,100	19,085	9,066	960		1,100	21,660	9,265	22,331	46,525
2	4,503	820	36,508	5,735	63,002		1,280	11,940	38,315	43,100	20,911
3	6,633	11,915	36,450	13,614	910		58	327	53,189	46,140	2,270
4		29,025	200	25,882					36,600	14,697	330
5		23,280		15,245					10,020	37,544	21,425
6		21,125		64,250					38,093	368	
7		41,310							37,050	23,763	
8									1,805	86,265	
9									25,300	223	
10										53,776	
11										11,000	
12										0	
13										2,000	
14										7,364	
15										359	
16										310	
Total	17,002	128,575	92,243	133,792	64,872	0	2,438	33,927	249,637	349,240	91,461

The NEFOP, from 1996-2006, observed 21,949 trips and 216,584 hauls. These trips were observed on 2,027 different vessels, by 456 observers. The increased frequency of errors in 2004 and 2005 above is due to an increase in observed trips, where approximately 3,500 trips were covered in 2004, and 4,500 trips were observed in 2005, and other years were closer to 1,500 trips per year.

Computerized audits were refined to detect possible errors at the data entry and data load stages to increase the error detection rate. Although ranges currently existed, this learning experience has allowed us to further fine tune fishery specific audits.

Discussions with gear manufactures

NEFOP staff met with gear manufacturers to substantiate the information provided by the MAFMC regarding the standard liner size used by most fishermen, and how fishermen would reference the twine. NEFOP staff made several site visits to gear suppliers, collected sample twine, and verified caliper measurements. With the information and samples provided at the ports, NEFOP has improved its training tools and audit programs.

Informing the debriefers

NEFOP conducted a two-day debriefing workshop to train and inform the program's editors (i.e. observer debriefers). During the workshop, the role of observer debriefers was clearly defined. Debriefers review observer trips to ensure that all data fields were completed, proper protocols were followed and sampling priorities were met. They evaluate observer performance, ensure the trip is complete and ready for data entry. NEFOP identified the need to provide consistent training to debriefers and expose them more to current management issues and the regulatory use of observer data. Debriefers were scheduled, and continue to attend, Fishery Management Council and committee meetings. This provides them with some connectivity to real issues, seeing the applicability of the observer data and hearing from the data users and industry first hand. NEFOP has updated their observer debriefing process, requiring regular in-person debriefings and establishing a formal checklist that includes an equipment check and gear testing. Among other changes, observers must meet with the Area Leads or the Operations Coordinator, must demonstrate their ability to collect gear measurement, and talk to analysts working with observer data.

Observer training

The NEFOP acquired a squid codend with liner as a hands-on teaching tool. Although the technique of how to measure the codend was always in the curriculum, the importance of obtaining the codend and liner mesh sizes is now stressed and reinforced throughout the training. The NEFOP is completely and fully documenting this mesh size problem as a teaching case study to identify the program's weaknesses and improve on them. Observers receive conflict resolution training, although now a role play scenario of a captain not wanting the codend measured has been added. This will help observers to negotiate and collaborate with the captain when there is resistance in obtaining the codend measurements.

Advisory to observers

Several notices have been sent to observers and NEFOP staff to remind them of the importance of collecting data as instructed in the protocols. The NEFOP has initiated a policy that requires observers to notify the captain prior to measuring the codend, so there is not a misunderstanding that the observer is not collecting the measurements as instructed. Most observers work the codend measurements into their routine without asking for any special concessions.

Gear development, observer workload, and outreach

Through the observer survey, NEFOP realized that using calipers as a measuring device may be awkward to use and may lead to inaccurate readings or reluctance to use them. A new tool will be tested that will make the handling of the twine easier, and the markings more clear to use. NEFOP researched the published literature on codend measuring tools and canvassed other observer programs world wide to inquire as to the tools that they used to measure codends.

NEFOP has put in place a “Shadow Trip Program” where a staff member accompanies an observer during an observed trip. This allows our staff to spend some time with the observers directly while working at sea. They can discuss and evaluate work load, gear performance, and sampling limitations. They can also get feedback from the industry directly.

There are multiple reasons that led to the collection of poor quality data, among them was a disconnect between the program and how the data were being used, poor communication between the industry and program, observer workload was too high and led to losing sight of the critical data, uncooperativeness aboard the vessels to collaborate with the observer in helping them achieve their expected goals, inadequate training tools, and awkward sampling tools. NEFOP is continuing to work on improving the program through a variety of ways. The NEFOP wants to and can collect high quality data. We take these complaints seriously and appreciate timely and detailed feedback in order to respond with a complete and thorough investigation.

Photo 4. This photo illustrates the correct way to use the calipers, but it can be difficult in harsh environmental conditions to get good placement within the mesh and a tight stretch.



Photo 5. This is a dangerous place for an observer to be, and the more cooperation and assistance they receive, the better they can follow their sampling protocols to collect the best data possible to make balanced and informed decisions on managing fisheries.



We'd like to encourage the industry to continue to provide the NEFOP with feedback. The NEFOP regularly conducts port visits and fishermen interviews, participates in outreach events, and receives Fishermen Comment Cards. All observers carry Data Release Forms for the captains to request a copy of their data and the Comment Cards. For more information about the Northeast Fisheries Observer Program, please feel free to contact me at any time at 508-495-2266.

Sincerely,

Amy S. Van Atten
Acting Branch Chief, Fisheries Sampling Branch

cc: N. Thompson
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